

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 09310996  
PUBLICATION DATE : 02-12-97

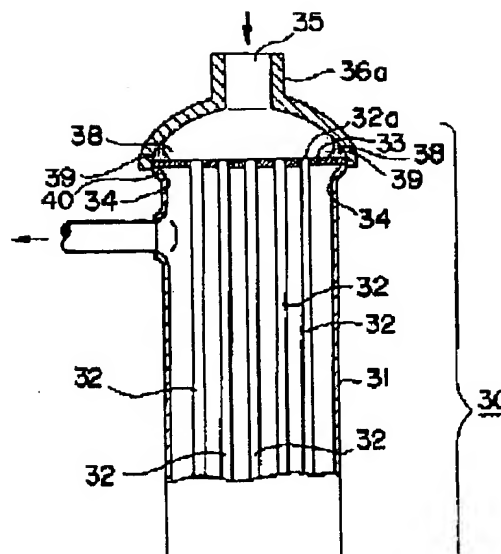
APPLICATION DATE : 22-05-96  
APPLICATION NUMBER : 08150372

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INT.CL. : F28F 9/02 F02M 25/07 F28F 9/26

TITLE : EGR GAS COOLER



**ABSTRACT :** PROBLEM TO BE SOLVED: To prevent the adherence of particulate substance to a heat transfer tube interior or the clogging of the tube for a long period by fixedly disposing heat transfer tube group on a plate metal tube sheet engaged with the enlarged end of a shell body tube, and expanding the space region formed between the sheet and the inner periphery of an end cap.

**SOLUTION:** The end 40 enlarged is formed at both or one of the ends of a shell body tube 31, and the outer periphery of the plate metal tube sheet 33 engaged with the end 40 together with the end 40 of the tube 31 are fixed by brazing or welding integrally with the inner end of the end cap 36a. Thus, the space region 38 formed between the inner periphery of the cap 36a and the sheet 33 is expanded, the EGR gas fed from the inlet 35 of the gas is smoothly guided to the tube 32 via the region 38, the flowing velocity in the cooling tube near the outside is raised to prevent the heat transfer coefficient in the tube from dropping, and the particulate substance accumulating, and the blocking time of the tube is largely prolonged.

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